

COURSE OF STUDY

FOR THE

PUBLIC SCHOOLS

OF THE

CITY OF NEW BEDFORD, MASS.

IN

DRAWING, MUSIC, NATURE STUDY,
MANUAL TRAINING (Wood Working),
COOKING AND SEWING,

FOR THE

ELEMENTARY GRADES.



1903.

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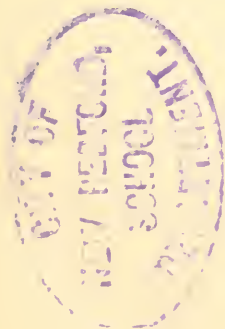
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PREFACE.

This course of study embraces the so-called *special branches* and completes the course of study for the elementary schools issued in 1901.

Each subject has been prepared by the supervisor or special teacher in charge, edited by the Superintendent, and approved by the Committee on Course of Study.

The foundation for each subject was the former course issued in 1897. Such modifications have been made as experience has taught to be wise, and further modifications will be made from time to time as changing conditions demand.

Prepared by Mary W. Gilbert, Supervisor of Drawing, (resigned December, 1901), revised by Lucy C. Bedlow; Fred H. Butterfield, Supervisor of Music; Caroline D. Wood, Supervisor of Nature Study; Edward R. King, Instructor in Manual Training; S. Agnes Donham, Instructor in Cooking; Lena M. Willis, Supervisor of Sewing.

WILLIAM E. HATCH,
Supt. of Schools.

Ordered printed by School Board.

ART INSTRUCTION.

Art instruction includes something more than the teaching of pictorial representation. It means development of creative ability as well as technical skill and appreciation of beauty in nature and in the work of artists and craftsmen.

We may use drawing in three ways,—in representation, seeking to reproduce truthfully the appearance of things; for service, to show the facts of form, the construction of things, as in drawings of machinery or architectural plans; or we may use it in pure design for the sake of the pleasure it may give. Design is order and system and underlies all the beauty in the world. Principles of design, of arrangement, proportion and relation are necessary in both representation and construction.

These subjects are carried together through the grades. In the primary grades the children draw freely from objects appealing to their experience, sketch from flowers, fruit and animals, and picture their playmates at their games and daily tasks. These drawings are not to be severely criticized, but should be received as the children's expression of their thoughts and interests. As they progress through the grades, through observation and practice they are led to discover underlying principles of representation and laws of beauty and so to increased powers of expression. Opportunity is given for imaginative and illustrative work and the figure and landscape drawing may be used to give pictorial expression of scenes described in poems or stories which the children are reading. Drawing may be made an effective aid also in nature work, history and geography.

In construction, or the service side of drawing, the children begin with clay modeling, paper folding and cutting to make simple objects, make view drawings of common things and patterns, proceed to working drawings and the making of accurate instrumental drawings and plans. Through the last they are led to the study of architectural forms and to acquaintance with masterpieces of architecture.

The children should be brought in contact with fine things by means of photographs, reproductions, casts and objects beautiful in form and color. Examples of historic ornament and architecture are offered for the pupil's study, connecting his thought with the life and work of those who have lived before him and presenting ideals helpful in his own work. He, however, lives in the present and should

learn something of the work of living artists. From the study of pictures of figures and landscapes he obtains help in his own representation of these subjects, and from his attempts to represent he learns to appreciate better the work of the masters.

But the object which is to be kept in view is to call forth the pupil's personal activity — not to copy the thoughts of others but to express his individual thought. Opportunity is given for creative work in designing such things as covers for school work with appropriate ornament, initials and chapter headings, surface designs suitable for the decoration of printed fabrics, beautiful forms for vases, articles of furniture, iron work and simple house plans, and pupils are led to the consideration of fitness of form to material and purpose and beauty of form and proportion.

Color is used in painting from nature and objects and to complete work in design. Exercises are given in observation of color, in training the eye to distinguish gradations and modifications of color and in color harmony.

In all these exercises in drawing certain principles of design,— balance, rhythm and harmony— should be observed. This thought of design should be carried into the daily work— into the arrangement of written work, the arrangement of specimens for nature study and flowers in the schoolroom and the form and color of receptacles in which they are placed, in the choice of color for draperies and the arrangement of drawings when placed on the wall. Nothing is too trivial to be done with order and design and everything has beauty in its own degree.

The general aim of the course in art instruction is to develop the pupil's creative ability and manual skill and his appreciation of beauty in life and art.

Grade I.

Time allowance, three twenty minutes or two half hour periods a week.

SEPTEMBER AND OCTOBER.

Color. Enjoying color in flowers and objects; selecting and grouping colors that look alike. By means of the spectrum thrown on the wall or by a color chart observe the natural order of colors in the spectrum. Collect specimens of color, papers, ribbon and cloth, leaves, bright berries, anything showing color, and arrange in the order of the spectrum. Paint a red apple, a yellow or green leaf.

Form. Group together objects having similar form. Model objects like the sphere, cube and cylinder. When necessary teach terms of location, right, left, front, back, etc. Give exercises in placing objects at dictation.

NOVEMBER.

Continue the collection and classification of colors. Model simple objects. Paint bright colored vegetables or illustrate some story of the Thanksgiving season. Free drawing at the blackboard: practice horizontal and vertical lines and circles. Draw on paper: combine the lines to make simple objects and letters.

DECEMBER.

Illustrative drawing. Let the children draw pictures of what they would like to have Santa Claus bring them; what they would like to give to their friends: illustrate the Christmas tree, hanging the stocking. Study a Christmas picture.

Cut or fold some simple form for a gift.

JANUARY.

Drill drawing of horizontal and vertical lines. Practice drawing and cutting the square and oblong. Lay a wash of ink or color over a traced circle, square and oblong. Paint a yellow sun, a green field.

FEBRUARY.

Draw an animal: ink silhouette. Draw figures illustrating action,—walking, running, gymnastic exercises. The children may fold, cut, draw or color valentines. Draw a flag or illustrate a story for Washington's Birthday.

MARCH.

Draw from toys and familiar objects with pencil and brush. Make more than one drawing of each object. Draw also from memory. Sketch twigs and catkins.

APRIL.

Model objects like the half-sphere, square prism and triangular prism. The teacher may draw on the blackboard objects in different positions, the children may select types and place as indicated by the drawing. Lay a wash of ink or color on the half-circle and triangle.

MAY.

Make a scale of six colors. Model simple objects. Illustrate a story by building with the type solids. Paint and draw spring flowers; study the arrangement of the flower spray in the space.

JUNE.

Draw flowers and leaves in different positions and use as motives for borders. Illustrate some song or poem which has been memorized during the year.

Grade II.

Time allowance, three twenty minutes or two half hour periods a week.

SEPTEMBER AND OCTOBER.

Collect and group specimens of color, arranging them in the order of the spectrum. Drill on lines and curves. Sketch grasses or sedges, fall flowers and berries. Make a scale of six colors. Teach tints and shades. Observe color in autumn leaves; paint bright leaves. Model fruit and objects similar in form to the ellipsoid and ovoid.

NOVEMBER.

Model objects. Review circle drawing and draw the square in different positions; draw oblongs of various proportions. Paint vegetables at Thanksgiving time.

DECEMBER.

Fold and cut some form or mount a picture for a Christmas gift. Illustrate a story appropriate to the season. Study a Christmas picture.

JANUARY.

Review drawing squares and oblongs in different positions; draw triangles. Fold and cut patterns of the square prism, cube, triangular prism, pyramid. Draw an animal; ink silhouette.

FEBRUARY.

Draw figures expressing action for different kinds of play and work. Draw a boy or girl posed to illustrate some story. Let the children design valentines. Draw and color the flag or cut star and shield.

MARCH.

Draw from toys and familiar objects, single and grouped, with the objects present and from memory. Make more than one study from the same object, drawing it in different positions. Sketch budding twigs and catkins; study the arrangement on the paper and the placing of initials.

APRIL.

Model the vase form and objects like the cone. Sketch spring flowers and arrange within an enclosed space; vary the shape of the space. Paint a plant in the window.

MAY.

Model a flower on a tablet. Combine lines to make a unit of design and repeat on a surface covering. Sketch flowers and leaves

in different positions and from these sketches derive units to repeat on borders and surface covering. Draw birds.

JUNE.

Study pictures of landscape. Notice the sky and ground spaces. Draw a tree on a hillside. Paint sky, ground and tree. Illustrate a story with a landscape setting.

Grade III.

Drawing book of the Prang Elementary Course, Third Year. Time allowance, three twenty minutes or two half hour periods a week.

SEPTEMBER AND OCTOBER.

Drill upon lines and curves with crayon on the blackboard and with pencil and brush on paper. Draw from grasses and fruit. Make a color scale containing six standards and six intermediates. Color autumn leaves. Draw spherical objects. Study the appearance of the cylinder and similar objects.

NOVEMBER.

Continue object drawing. Draw from vegetables with pencil and color. Thanksgiving illustration.

DECEMBER.

Draw and color a Greek or Maltese cross. Apply this to the designing of a Christmas card or a calendar. Study a Christmas picture.

JANUARY.

Draw a cat or rabbit from life; ink silhouette.

Draw from a boy or girl posed to illustrate some story. Aim to express proportion and general form and action rather than detail. Study should be given to the expression of action. The children may perform an action and then try to draw it. The skeleton figure of straight lines is helpful for this work.

FEBRUARY.

Draw and make patterns of the cube, square prism and triangular prism. The children may be led to think out the pattern from observation of the model or they may fold and cut the pattern before drawing.

MARCH.

Draw from common objects, single and grouped. Draw also from memory and compare with the object or group. Draw and color the quatrefoil. Before drawing, the figure may be folded and cut from paper.

APRIL.

Combine lines and repeat circles, square and triangles to form borders. Study such borders as given in primitive design work and in Indian basket patterns. Illustrations are given in the drawing book.

MAY.

Sketch spring flowers with pencil and brush. Consider the arrangement and placing on the page. Combine lines and shapes to make a unit of design and repeat in a surface covering; color.

JUNE.

Study pictures of landscape. Observe the sky and ground spaces. Draw a tree on a hillside. Represent a tree near by, a tree far away. Illustrate a story, using a landscape setting.

Grade IV.

Drawing book of the Prang Elementary Course, Fourth Year. Time allowance, two half hour periods a week.

SEPTEMBER.

Draw leaves in different positions, showing foreshortening; use pencil and brush. Draw also from memory. Draw sprays of leaves. Study the growth and character of the plant. Study drawings of plants. When using pencil vary the line to suggest character. Draw a pear; if possible obtain fruit with a twig attached.

OCTOBER.

Draw trees. Endeavor to represent the characteristic shape of the tree, that difference in form which enables us at a distance to distinguish the pine from the elm. Study the growth. Place the tree in an oblong, making a landscape composition. Make a scale of three values, black, white and middle gray, and apply in finishing the landscape.

NOVEMBER.

Draw groups of two or three solids, choosing from the sphere, cube, cylinder, hemisphere and square prism. Review and drill on geometric figures. Make a design for a tile and finish in three values.

DECEMBER.

Draw and color historic foils, — the trefoil, the quatrefoil. Use one of these figures in designing a Christmas card or calendar.

JANUARY.

Draw a boy or girl. Study should be given to proportion and action rather than to detail. Study the artists' sketches given in the

drawing book. Pose the child to illustrate some story or poem familiar to the children.

FEBRUARY.

Views. The children should be led to understand the difference between a picture drawing, a pattern and a view drawing and should be able to read correctly and place models for all the illustrations given on pages 23 and 24 in the book. Draw two views of type solids. Draw and make a pattern of a box. Draw and color the American shield.

MARCH.

Draw from familiar objects, single and grouped. When grouping select objects harmonious in color which may be appropriately placed together. The story element adds interest. Consider placing, relative size and proportion of the objects, sketch lines and finishing lines.

APRIL.

Draw budding twigs and catkins arranged in a panel. Draw birds, from life when possible. Connect the drawing with the work in nature.

MAY AND JUNE.

Sketch flowers and leaves in different positions. Make several drawings of a single plant form. From these sketches derive a unit of design and repeat it in a border. Design a rosette from a floral form. Color the rosette, using three values. Make a surface covering: the repeated unit may be suggested by a flower leaf or object, or may be composed of a combination of lines and shapes.

Grade V.

Drawing book of the Prang Elementary Course, Fifth Year. Time allowance, three half hour periods a week.

SEPTEMBER.

Draw from flowers and leaf sprays. Study the characteristic lines of growth and show the foreshortening of the plant forms. Use brush and pencil.

OCTOBER.

Insect life. Make a composition of grasses or flowers with an insect or illustrate scenes from the life history of an insect. Combine with the nature study. Make a landscape composition with trees. Make a scale of three values, black, white and middle gray, and use in completing the drawing. Repeat in color.

NOVEMBER.

Draw from type forms and similar objects. Draw the cone and square pyramid. Draw the vase form.

DECEMBER.

Draw the Greek lily; ink silhouette. Draw and color a historic leaf form.

JANUARY.

Sketch a boy or girl in costume. Consider proportion and look for lines which express action.

Collect specimens of well-designed lettering and study. Practice printing.

FEBRUARY.

Two views of an object. Use tools, scholar's companions, knives and familiar objects simple in form. Have plenty of objects, so that each pupil has one in his own hands to examine and work out. Let the pupils exchange objects and make several drawings. Design a pattern for a folding box.

MARCH.

Draw from familiar objects, single and grouped. Give attention to the making of object compositions.

APRIL.

Design a unit and repeat it in a surface covering. The unit may be a spot suggested by a flower, leaf, object, or it may result from an original combination by the pupil of dictated spots. Make a scale of three values of a color and apply to the design. Sketch spring flowers.

MAY.

Make a set of drawings from a plant form, showing the plant in different positions and separate views of bud, flower and leaf. From these derive a unit to be used in a border. Study the illustrations of historic ornament given in the drawing book for examples of such treatment in design.

JUNE.

Place a well proportioned capital letter in a square or oblong. Consider carefully the placing and the relative proportion of letter and space. Arrange a leaf spray in composition with the letter.

Grade VI.

Drawing books 6 and 7 of the Prang Elementary Course. Time allowance, three half hour periods a week.

SEPTEMBER.

Draw fall plants, berries or sedges with pencil and brush. Color exercises.

OCTOBER.

Study tree form. Place in a landscape. Finish the composition in three values of dark and light. Repeat in color.

Sketch a boy or girl in costume.

NOVEMBER.

Sketch the cylinder and hemisphere in different positions; draw similar objects. Build the cylinder and cone and the square prism and pyramid to represent towers. Study towers from pictures and when possible from buildings in the vicinity. Make a composition containing a tower.

DECEMBER.

Continue the object drawing. Practice lettering. Design a Christmas booklet or calendar.

JANUARY.

Egyptian ornament. Study illustrations given in the book for vigor and grace of line, beauty of space relation and treatment of natural form in decoration. The symbolic meaning of some of the forms. Study the architectural examples shown. Copy and color two or more examples of ornament. Begin construction.

FEBRUARY.

Make view drawings of tools, electric light bulbs and other objects. Let each pupil have an object to study and work out for himself. Pupils may exchange models and make several drawings. Draw views of type solids. Study the spacing of windows; draw a window.

MARCH.

Design a vase form—cutting from paper. Consider proportion, balance, stability, beauty of curve. Make a pictorial drawing of the vase designed. Draw grouped objects. Make a composition of objects; finish in values of light and dark.

APRIL.

Continue the object drawing. Draw from the posed figure. Study the artists' sketches in the book.

MAY AND JUNE.

Draw plant forms. Make a unit of related lines and shapes or derived from a natural form and repeat it in a surface covering. Make a composition of an initial letter and a flower or landscape. Consider the placing and the relative proportion of letter and space. Use a plain, well-designed letter. Finish in values. Design a bowl and a border to decorate it.

Grade VII.

Drawing book of the Prang Elementary Course, Sixth Year. Time allowance, two forty-five minutes periods a week.

SEPTEMBER.

Draw from autumn plant forms — woodbine, rosehips, alder berries, etc. Use pencil and brush and color.

OCTOBER.

Study should be given to the characteristics of trees as to shape and proportion of the mass of foliage and the trunk. What are the characteristic lines of growth? If it is possible to work from nature, a tree some distance away should be selected and massed in strokes which seem best fitted to interpret the foliage, noticing where the foliage is thick and where it is so thin that the light shows through. No attempt need be made to express light and shade, but simply give the tone of the tree compared with its surroundings, light, medium or dark. If a tree cannot be studied from nature, a good result may be secured by copying intelligently a well-rendered study, seeking to learn how the artist gained his effect. Pupils should be encouraged to make sketches out of school. Make a landscape composition and finish in dark and light; repeat in color. Let the pupil express his thought of a written description. Correlate with literature.

NOVEMBER.

Sketch the cube and square prism on, below and above the level of the eye, and turned at angles. Draw from memory. Draw similar objects, such as books, a chair, boxes, etc.

DECEMBER.

Build the square prism and pyramid to represent a tower. Study towers to be seen in the city and famous towers in pictures. Draw towers and make a composition, or draw chimneys and roofs seen from the window. Make a Christmas design and letter an appropriate quotation.

JANUARY.

Greek ornament. Study the illustrations of historic ornament for beauty of line and space relation and treatment of natural form in design. Compare the Greek with the Egyptian examples. What are the characteristics of Greek ornament? Egyptian architectural forms. Greek architectural forms. Doric and Ionic capitals. Use of the Greek architectural forms at the present day; examples in buildings in New Bedford. Copy two or more examples of ornament. Begin construction. Practice reading working drawings.

FEBRUARY.

Make working drawings of solids and of objects. Two views and a pattern of a type solid; tint the pattern. Design an escutcheon, hinge or bracket. Design a door, giving careful thought to the spacing of the panels.

MARCH.

Draw from the pose. Study the figure sketches in the books by Millet, La Farge and other artists. Draw from a living animal. Look for the lines which show action and which are characteristic of the animal.

APRIL.

Make a composition of a group of objects in an oblong. Make a scale of five values in dark and light and apply in completing the drawing.

MAY.

Continue the object drawing. Make careful pencil studies of spring flowers. Make a flower composition in ink or color.

JUNE.

From a series of rhythmically related spots compose a unit and repeat to form a design for a printed fabric. Finish in color.

Grade VIII.

Drawing book of the Prang Elementary Course, Seventh Year. Time allowance, two forty-five minutes periods a week.

SEPTEMBER.

Draw from fall plants with pencil and brush. Use a stalk of corn for a subject and make a composition. Color exercises.

OCTOBER.

Tree study and landscape composition. Make an illustrative drawing from a written description suggested by some book which

the class is reading. The attention of the children should be directed to good landscape composition in sketches by acknowledged artists. Autumnal color.

NOVEMBER.

Study the cube and square prism in all positions. Draw from memory. Draw similar objects. Build the triangular prism on the square prism to make a house and draw.

DECEMBER.

Roman, Byzantine and Romanesque ornament. Emblems appropriate to the season may be copied and colored from the illustrations given and applied to the decoration of a book cover or Christmas gift.

JANUARY AND FEBRUARY.

Teach geometric problems. Working drawing to scale. Three views of a type solid. Section of a hollow cylinder. Make a working drawing of the teacher's desk or of a similar object, or make a design for a piece of furniture, giving the proper views to show the construction. Design a grille for a door or window space or a balcony railing. Consider beauty of curve and of spacing, principal-ity and subordination of parts. If possible, examples of iron work should be brought into the schoolroom. Photographs and pictures should be studied and attention should be directed to good examples of ornamental iron work in buildings in the vicinity which may be seen and studied.

MARCH.

Draw a boy or girl in costume. Study the figure sketches by artists given in the book. Look for leading lines. Draw from a living animal. Study the sketches of animals given, observing characteristic lines of the animal and those showing action, and make quick sketches as an aid to study from life.

APRIL.

Draw from grouped objects. Make a scale of values in dark and light and use in the composition. Apply the scale of values in light and shade, using a single object.

MAY AND JUNE.

Make careful pencil studies of spring flowers. Make a flower composition in color. From the study of a natural form derive abstract spots from which make a unit of design and repeat in a surface covering or border: color.

Grade IX.

Drawing book of the Prang Elementary Course, Eighth Year.
Time allowance, two forty-five minutes periods a week.

SEPTEMBER.

Paint fall flowers and fruit on branches. Exercises in color harmony.

OCTOBER.

Landscape composition. The attention of the pupils should be directed to the study of good landscape composition as seen in the work of acknowledged artists. Effects in nature,—sunset, twilight and moonlight may be studied. The color of the seasons may be illustrated. A harvest sketch is suggested. Illustrate a scene from some poem which the class is reading.

NOVEMBER.

Review the drawing of type forms already studied. Draw the cone and pyramid in different positions. Sketch similar objects. Draw towers or spires or make a sketch of roofs seen from the window. Sketch a corner of the schoolroom.

DECEMBER.

Copy one or two of the simpler geometric designs given as illustrations of Saracenic ornament. Characteristics of Gothic architecture and ornament. Study the illustrations of beautiful buildings.

JANUARY.

Renaissance architecture and ornament. Illustrations of beautiful buildings. Review geometric problems and begin construction.

FEBRUARY.

Draw a plan of the schoolroom to scale or make an original ground plan for a house. Draw the elevation of the wall of a room. Design a lantern and bracket, a lamp or candlestick, a bracket for an electric light, a swinging sign or some object to be made in wrought iron. (See outline for Grade VIII.)

MARCH.

Draw from grouped objects. Make a composition in values of dark and light. Draw objects showing light and shade.

APRIL.

Draw from the figure and use it in a composition with appropriate setting. Study the artists' sketches given in the drawing book.

A design for a poster connected with some school interest may be made.

MAY AND JUNE.

Draw birds; use the bird as motive in a book cover or poster. Make pencil studies of plant form. Make a flower composition in color. Design a surface covering or panel.

MUSIC.

“Music is the art of the prophets,—the only art that can calm the agitations of the soul; it is one of the most delightful gifts that God has given us.”—*Martin Luther*.

“Music is an important element of modern culture, a refining social influence, a subject about which few cultivated persons nowadays are willing to be thought ignorant or indifferent, an art which in one way or another actually interests more thousands of people, more occupies their thoughts, more ministers to their enjoyment, than any science, or than most branches of literature and learning.”—*Dwight*.

“Music is a discipline, a mistress of order and good manners; she makes the people milder and gentler, more moral and more reasonable.”—*Martin Luther*.

“The meaning of song goes deep. Who is there that, in logical words, can express the effect music has on us? A kind of inarticulate, unfathomable speech, which leads us to the edge of the infinite, and lets us for moments gaze out into that.”—*Carlyle*.

“I need not tell you that music bears upon its wings some of the sweetest and purest pleasures of the passing hour, whether it gushes forth from the human lips or from the breath of old Æolus upon his throne. Music elevates and quickens our perceptions; it softens and subdues the rebellious disposition; it refines and soothes the wayward and turbulent passions; it nerves the heart to deeds of valor and heroism; it gives joy and consolation in the hour of affliction, and carries the soul captive across the rough and stormy sea of life, and stands beyond the vale of time to welcome, with angelic voice, the wandering spirit to its final home.”—*Dr. Hall*.

If we turn from the esthetic side of our subject to the practical, we find the chief objects to be attained by the study of music in the public schools to be these:—

To learn to read music at sight.

To cultivate the ear and the musical taste.

To develop and strengthen the vocal organs.

To foster the love of singing inherent in the heart of the child.

To secure a fairly good use of the voice, by the careful practice of a few of the fundamental principles of tone production.

In a word, so to develop and cultivate the power of song in our pupils as to win their gratitude in coming years for the training that enables them to lift their voices in joy and praise.

General Directions.

Each singing lesson should begin with a Vocal Drill. The teacher, taking the pitch of \bar{d} or \bar{e} flat, should illustrate, and the pupils should sing the scale, ascending and descending with the given sound.

VOCAL DRILL.

- | | |
|-------------------------------|--------------------------|
| 1. oo, Loo. | Sing the scale with Loo. |
| 2. oo, oh, Loh. | Sing the scale with Loh. |
| 3. oo, oh, awe, Law. | Sing the scale with Law. |
| 4. oo, oh, awe, ah, Lah. | Sing the scale with Lah. |
| 5. oo, oh, awe, ah, a, La. | Sing the scale with La. |
| 6. oo, oh, awe, ah, a, e, Le. | Sing the scale with Le. |

NOTE. — Let the lips be protruded to bring the "oo" as far forward as possible. Try to make each succeeding vowel as far forward as the "oo."

This Vocal Drill will be found very beneficial, *if* the pupils practice it *with care*.

In grades *above* the third, the teachers should take the compass of each pupil's voice, and *preserve* the record for *reference*.

"A tetrachord is a scale of four sounds, as though the first four sounds of the scale,—1, 2, 3, 4,—formed one complete scale, and the last four,—5, 6, 7, 8,—another. The scale of eight sounds may be regarded as made up of two tetrachords, placed one above the other a tone apart."

Teach all transpositions by the tetrachordal system, and have each scale sung with the pitch names.

Keep constantly in review the pitches of the lines and spaces of the staff, also the key and measure signatures. The pupils should be taught that a dotted quarter note is two beats long *with an eighth note after the second beat*, whenever the one beat note is a quarter note.

A strict adherence to the following directions from the Introduction to Book Two of "The Mason School Music Course" should be carefully observed.

1. Require a good position of the pupils while singing.
2. Do not allow them to sing *too loudly*, or to shout instead of sing.
3. Do not let them heavily drag the rhythm.
4. Do not permit coarseness of utterance or indistinct articulation.
5. From the very first, aim at imparting a generally soft style of singing as the basis of all expression.
6. Encourage liveliness and cordiality of manner, to preserve the buoyancy of the music.
7. Great care should be taken by the teacher that all songs be taught *correctly* as to *time* and *tone*.

Accent makes *measure*. Be careful, therefore, of the accent. Have the pupils say the time names with the *same accent* and in the *same tempo* that the exercise or song is to be sung; otherwise, the time names are useless.

COURSE IN MUSIC.

First Grade.

(See "General Directions.")

The pupils of the first grade are to be taught to sing the songs and exercises in "Butterfield's Primary School Music Exercises, first year," and any other songs and exercises that the Supervisor of Music may direct.

Second Grade.

(See "General Directions.")

The pupils of the second grade are to be taught the exercises and songs in "Butterfield's Primary School Music Exercises, second year," and any other songs and exercises that the Supervisor of Music may direct. They are to be taught the scale formation, the staff, \bar{g} clef, whole, half, quarter, and eighth notes and the corresponding rests. They must also be taught to sing one song from the staffs in each of the nine major keys.

Third Grade.

(See "General Directions.")

The pupils of the third grade should be taught the places of the pitches on the staff, the signatures for nine of the major keys, and the significance of the measure signatures; also to transpose, from the figure notation to the staff, the exercises and songs in "Butterfield's Primary School Music Exercises, third year," and to sing the same.

They must also be taught other songs and exercises as directed by the Supervisor of Music.

Fourth Grade.

(See "General Directions.")

The pupils of the fourth grade should (at least once a week) read the pitch names from the staff, commencing at \bar{g} and ascending and descending one octave.

The work is arranged by months as follows:—

SEPTEMBER.

Teach pages 13, 15, 18, 19, and 38 of the "New Second Music Reader."

Teach the Rounds (neostyled) in the keys of C, G, and D.

Place on the board the first Round in C in figures for the class to transpose to the staff at their desks, also the first Round in G, and the first in D. After the pupils have written the Round, the teacher should write it on the board, that they may correct errors. Have the class sing from their papers.

OCTOBER.

Teach pages 20, 21, 22, and 23, and the Rounds in A, F, and B flat. The class should transpose from the figure to the staff notation the first Round in A, the second in F, and the first one in B flat, and sing the same from their papers.

NOVEMBER.

The class should transpose from the figures to the staff the first Round in E flat, the second one in E, and the first one in A flat, and sing the same from their papers. Teach the remainder of the Rounds, and pages 31, 32, and 33.

DECEMBER.

Teach pages 39 and 40. Have exercise No. 3 on page 40 transposed from figures to the staff.

Teach page 41, and have exercise No. 3 on page 42 transposed from the figures to the staff.

Transpose the scale from C to G, and teach pages 46 and 47. Have the altos transpose from the figure to the staff notation No. 8, and the sopranos No. 9, on page 48.

Teach page 48 and Charts 27 and 28.

JANUARY.

Transpose the scale from C to F.

Teach pages 76 and 77, and have the 8th exercise transposed from the figure to the staff notation.

Teach Charts 37 and 38.

Transpose the scale from G to D. Write the song "Morning Prayer," page 59, in figures on the board, and have it transposed by each part to the staff notation.

Teach pages 58 and 59.

FEBRUARY.

Transpose the scale from F to B flat.

Transpose from the figure to the staff notation Nos. 2 and 3 on page 82.

Teach exercises 1, 2, 3, and 4 on page 82, and Charts 39 and 40.

Transpose the scale from D to A.

Transpose from the figure to the staff notation exercises 5 and 7 on page 65.

Teach pages 64 and 65 (omitting the song) and Charts 33 and 31.

MARCH.

Teach pages 53, 54, and 55.

Transpose the scale from A to E.

Transpose from the figure to the staff notation Exercises 2 and 3 on page 70, and teach pages 70 and 71. Charts 35 and 36.

APRIL.

Teach pages 60, 61, and 62, and Charts 31 and 32.

Transpose the scale from B flat to E flat.

Transpose from the figure to the staff notation Exercise 6 on page 89, and Exercise 8 on page 90.

Teach page 88 and Charts 41 and 42.

MAY.

Transpose the scale from E flat to A flat.

Transpose from the figure to the staff notation Exercise No. 8 on page 95.

Teach pages 94, 95 and 96, and Charts 43 and 44.

Teach "Spring Morning," p. 36;

"A, A, A," p. 49;

"Oh! the Lovely, Lovely May," p. 136.

JUNE.

Teach "How Lovely are the Woods," p. 80;

"Sweet Rural Scene," p. 83;

"How Lovely! How Charming," p. 74;

"Vacation Song," p. 148.

Teach such other songs and exercises as the Supervisor of Music may direct.

Fifth Grade.

(See "General Directions.")

SEPTEMBER.

Review pages 38, 39, 40, and 41, "Second Music Reader."

Teach the following songs:—

"We Know a Land," p. 140;

"Autumn," p. 162;

"The Birthday," p. 150.

OCTOBER.

Teach "Change of Seasons," p. 68;

"Childhood Pleasures," p. 72;

"The Hunter's Prize," p. 81.

NOVEMBER.

Teach "The Harvest Time,"	p. 146;
"The Fountain,"	p. 90;
"On the Water,"	p. 157;
"The Grove,"	p. 132.

DECEMBER.

Teach "Procrastination,"	p. 155;
"Cold the Blast May Blow,"	p. 103;
"Changes,"	p. 136.

JANUARY.

Teach "The New-Year Song,"	p. 163;
"Patriotic Song,"	p. 142;
"Student's Song,"	p. 160;
"The Wanderer's Return,"	p. 75.

FEBRUARY.

Teach "Midwinter,"	p. 141;
"The Swiss Boy,"	p. 134;
"Good Night,"	p. 153.

MARCH.

Teach "To the Lark,"	p. 122;
"The Herdsman's Happy Home,"	p. 110;
"The Two Voices,"	p. 109;
"Early Spring Days,"	p. 111.

APRIL.

Teach "Spring Song,"	p. 120;
"Friendship,"	p. 67;
"First Days of Spring,"	p. 85.

MAY.

Teach "The Violet,"	p. 112;
"Cease Sweet Content to Slander,"	p. 119;
"Come, May, thou Lovely Ling'rer,"	p. 142;
"Merrily Ev'ry Heart is Bounding,"	p. 152.

JUNE.

Teach "The Ramble,"	p. 113;
"Rural Delights,"	p. 158;
"The Wild Bird's Song,"	p. 91;
"Summer Joys,"	p. 135;
"Vacation Song,"	p. 148.

Teach such other songs and exercises as the Supervisor of Music may direct.

Sixth Grade.

(See "General Directions.")

SEPTEMBER.

Teach pages 1, 2, 3, 4, and 5 of the "New Third Music Reader."

Also "The Sabbath,"	p. 23;
"The Evening Sun,"	p. 36;
"Evening Thoughts,"	p. 69.

OCTOBER.

Teach pages 6, 7, 8, and 9.

Also "Morning Praise,"	p. 111;
"The Forest Concert."	p. 116;
"Jubilee Song,"	p. 114;
"Battle Song,"	p. 123.

NOVEMBER.

Teach pages 10, 11, 12, 13, and 14.

Also "Farewell to the Woods,"	p. 74;
"Song Without Words," No. 3,	p. 81;
"A Song of Thanksgiving,"	p. 104.

DECEMBER.

Teach pages 15, 16, 17, 18, 19, and 20.

Also "On the Alps,"	p. 102;
"Pleasures of Study,"	p. 41;
"Our Native Land,"	p. 46.

JANUARY.

Teach pages 21, 22, 30, 31, 32, 33, 34, 38, and 39.

FEBRUARY.

Teach pages 40, 42, 43, 44, 46, and 47.

MARCH.

Teach pages 48, 49, 50, 51, 52, and 53.

APRIL.

Teach pages 54, 56, 57, and "Springtime," p. 116.

MAY.

Teach "First Day of May,"	p. 68;
"Far Away,"	p. 59;
"Spring Wishes,"	p. 63;
"Always Some Good,"	p. 70.

JUNE.

Teach "Home,"	p. 91;
"Hope,"	p. 128;
"The Alpine Horn at Sunset,"	p. 120.

Also other songs and exercises that the Supervisor of Music may direct.

Seventh Grade.

(See "General Directions.")

Review pages 1, 14, 15, 16, 17, 18, 19, 20, 32, 33, and 34 in Book I.
"New Third Music Reader."

Teach from Book II, pages 9, 10, 11, 12, 13, and 15.

OCTOBER.

Teach pages 19 and 20, Book II.	Review p. 39, Book I.
26 and 30, Book II.	Review p. 50, Book I.
31 and 32, Book II.	Review p. 43, Book I.

NOVEMBER.

Teach pages 38 and 39, Book II.	Review p. 53, Book I.
46 and 50, Book II.	Review p. 47, Book I.
51 and 56, Book II.	Review p. 57, Book I.

DECEMBER.

Teach pages 59, 61, 62, 73, 78, and 36.

JANUARY.

Teach "The Sunbeams Streak the Azure Skies,"	p. 66;
"Morning,"	p. 18;
"Oh! See How Pleasant,"	p. 60;
"Winter,"	p. 110, Book I.

FEBRUARY.

Teach "Morning Breaks,"	p. 27;
"Barbarossa,"	p. 42;
"Sea Song,"	p. 54;
"Song of the Dragoons,"	p. 58.

MARCH.

Teach "Saturday,"	p. 16;
"The World is Wide,"	p. 24;
"Welcome Home,"	p. 47;
"The Foot Traveller,"	p. 48.

APRIL.

Teach "Morning Song,"	p. 74;
"A Wood Concert,"	p. 28;
"An April,"	p. 63;
"Poor Man's Song,"	p. 118, Book I.

MAY.

Teach "On the Laughing Wave,"	p. 76 ;
"Song of May,"	p. 65 ;
"Brave of Heart and Warriors Bold,"	p. 72 ;
"Pleasures of the Wood,"	p. 52.

JUNE.

Teach "To the Mountains,"	p. 44 ;
"O Flow'ret Fair,"	p. 37 ;
"See! the Setting Sun is Firing,"	p. 22.

Also other songs and exercises that the Supervisor of Music may direct.

Eighth Grade.

(See "General Directions.")

Teach the places of the pitches from G to \bar{d} (one lined) on the staff with the Bass clef.

SEPTEMBER.

Teach pages 8-25 in the "New Fourth Music Reader."

OCTOBER.

Teach pages 26-31, 34-36, 40-43.

NOVEMBER.

Teach pages 44-47, 50-56, 63-65.

DECEMBER.

Teach pages 66-70, 73-81.

JANUARY.

Teach "Lord of the World,"	p. 89 ;
"Praise ye the Lord of Light,"	p. 83 ;
"Swell the Anthem,"	p. 40 ;
"The Seasons."	p. 97.

FEBRUARY.

Teach "The Mariner,"	p. 205 ;
"Longing for Spring,"	p. 93 ;
"Wait for the Lord,"	p. 162 ;
"Beloved Land."	p. 122.

MARCH.

Teach Exercise 1,	p. 99 ;
"Father, Teach Me,"	p. 173 ;
"With Wind and Tempest,"	p. 116 ;
"De Kalb,"	p. 102.

APRIL.

Teach Exercise 10,	p. 138;
"Rest,"	p. 49;
"O Heart, What Wilt Thou More?"	p. 105;
"Praise of God,"	p. 167.

MAY.

Teach "May-Song,"	p. 130;
"Old Barbarossa,"	p. 108;
"Memorial Hymn,"	p. 128;
"So Peaceful Sleeping,"	p. 182.

JUNE.

Teach "National Motto,"	p. 96;
"Our Hearts are Light,"	p. 118;
"Courage Bold,"	p. 132.

Also other songs and exercises that the Supervisor of Music may direct.

Ninth Grade.

(See "General Directions.")

SEPTEMBER.

Teach the following songs and exercises:—	
"Forth with Footsteps Light,"	p. 195;
"The Peaceful Valley,"	p. 101;
"Summer Eve,"	p. 143;
"Hymn of Praise,"	p. 242.

OCTOBER.

Teach "My God, how Endless is Thy Love,"	p. 142;
"Evening Shades are Falling,"	p. 124;
Exercise 3,	p. 106.

NOVEMBER.

Teach "Morning Song,"	p. 194;
"Autumn,"	p. 240;
"Knowest Thou the Land,"	p. 126;
"Our Fatherland,"	p. 192.

DECEMBER.

Teach "Praise Ye the Lord,"	p. 248;
"Coda,"	
"The Sweet Briar Rose,"	p. 267;
"Vigilance,"	p. 200.

JANUARY.

Teach "What God Performs,"	p. 265;
Exercise 19,	p. 164;
"Coda,"	
"Morning,"	p. 129.

FEBRUARY.

Teach "The Curfew,"	p. 188;
"O Mother Heart,"	p. 236;
"The Snow Drop,"	p. 222;
Coda,	

MARCH.

Teach "The Chapel,"	p. 207;
"Sing to the Lord,"	p. 250;
"Mother's Love,"	p. 230;
Coda,	

APRIL.

Teach Exercise 5,	p. 121;
"O Tender Buds,"	p. 238;
Coda,	
Exercise 1,	p. 202.

MAY.

Teach "May Breezes,"	p. 274;
Coda,	
"Wander Song,"	p. 146.

JUNE.

Teach Exercise 6,	p. 228;
"Slavonian Dance Song,"	p. 270;
Coda,	

Also other songs and exercises that the Supervisor of Music may direct.

The High School.

The pupils of the High School sing glees, part-songs, choruses, and cantatas under the personal direction of the Supervisor of Music.

The Harrington Training and Normal School.

The pupil-teachers of this school, in addition to observation lessons, receive instruction in the elementary principles of child-voice training, in the writing of simple melodies, and in the theory and practice of teaching music.

NATURE STUDY.

General Purpose of Nature Study.

Close contact with nature which shall lead to a sympathetic acquaintance with natural environments. The creation of an ever increasing interest by the development of power to see things and understand the meaning of what is seen. A knowledge of some of the great laws of nature, to broaden the child's conception of life by teaching him to appreciate beauty and adaptation, and to realize the economic value of such knowledge to man. A preparation for much that is met in geography, literature, and art; and the cultivation of a love for good nature literature.

GUIDING PRINCIPLES.

1. Create spontaneous interests that will become permanent.
2. Search develops interest.
3. Utility—economic value of nature to man.
4. Arouse thoughts of beauty and adaptation.

GENERAL MEANS.

(Select some line and do it well).

1. Nature calendars and diaries.
Collection of materials and facts—birds, flowers, trees, animals.
2. Individual cultivation of living things.
Pets, raising plants and trees from seed, home gardens.
3. Raising living things in schoolroom.
Aquaria and vivaria—e. g., variety of seeds, tent caterpillars, toads' eggs, pond life, ferns, insects.
4. Bird study.
Migration, songs, nests, habits; bird calendars, bird boxes.
5. Close connection with art work.
6. Reading the books of the best naturalists.

COURSE IN NATURE STUDY.

First Year.

SPECIAL PURPOSE.—Sympathetic acquaintance with plants and animals.

SEPTEMBER.

Flowers.—Recognize and name common wild flowers and weeds; look for different colors. Recognize and name parts of growing plants. Observe *where* and *how* plants grow; watch the blossoms changing to fruit. Notice the insects that visit the blossoms.

Animals.—Look for birds, noticing where they are and what they are doing. Find caterpillars feeding on plants; collect cocoons; notice grasshoppers and crickets.

OCTOBER.

Flowers.—Notice the departure of the wild flowers.

Trees.—Learn to recognize by their leaves ten of the most common shade trees. Recognize the changing leaves, and collect leaves showing the different colors. Notice the new buds. Think of the work of the falling leaves on the ground.

Animals.—Notice the departure of the birds, think why some go earlier than others, and notice which ones remain.

Myths and Indian legends representing the changes in the seasons.

NOVEMBER.

Trees.—Continue observation of trees for the purpose of learning to recognize them when destitute of leaves.

Fruits.—Recognize the fruit as a part of the whole plant. Think of the work of each part of the plant for the fruit.

The color, the covering, and the scattering of fruits and seeds.

Animals.—Notice which of those found in September can be found in November. Think of their preparation for winter.

DECEMBER AND JANUARY.

Trees in Winter, Evergreens.—(1) Recognition of the pines, the spruce, hemlock, cedar, and arbor-vitae. (2) Recognition of the buds, number and position; of the needles as leaves; of the cones as fruit.

Animals.—Notice the winter birds, where they are, and what they eat. Stories of their life.

FEBRUARY AND MARCH.

Domestic Animals.—Cat and dog as illustrating the characteristics of the flesh-eating animals in their habits, movements, covering, senses, eating, voices, care of young, intelligence.

Pictures and stories of wild animals belonging to this group.
Other pet animals.

Preparations for Spring.—Watch for the first signs of the return of the birds, frogs, and insects; the blossoming of the skunk-cabbage, pussy willow, and alder.

APRIL.

Recognition of Trees and Shrubs.—(1) By the buds, to notice habits of opening. (2) By the blossoms. Watch the willow, elm, poplar, maple, and balm-of-Gilead as their blossoms change to fruit.

Keep a record of the time when trees, shrubs, and wild flowers blossom.

Watch the growth and development of seedlings to note habits of growth, and needs.

Animals.—Keep a list (1) of all the birds as they are noticed for the first time, (2) of the insects. Watch the eggs of toads and frogs develop into tadpoles.

Keep an illustrated nature calendar.

MAY AND JUNE.

Continue nature calendar.

Flowers.—Recognition of wild flowers and weeds, finding the beautiful parts, the essential parts. Notice insect visitors and think of their work for the flower. Flower myths.

Animals.—Continue the recognition of birds—by color and song. Watch cocoons bursting, other insects coming from the ground.

SECOND YEAR.

SPECIAL PURPOSE.—Enlarged acquaintance with plants and animals. Seasonal changes.

SEPTEMBER.

Flowers.—Keep a record of the wild flowers and weeds as they are brought in and recognized. Notice the parts of flowers, their relation to each other, and their use; insect visitors. Watch the flowers changing to fruit. Flower myths.

Animals.—Recognize common insects; note whether they are helpful or injurious to plants. Collect a few caterpillars and watch them spin cocoons. Keep a list of the birds observed, for the purpose of noting time of departure.

Natural Phenomena.—Sun—position in the heavens, comparative length of day and night September 22nd. Dew—when found, where, disappearance.

OCTOBER.

Weather Record.—Keep an illustrated weather record for the purpose of observing the temperature, wind and forms of water; note

the comparative length of day and night, associate all these for the purpose of observing the gradual approach of winter, and associating changes in life with the seasonal changes.

Trees.—Recognize by their leaf, fruit, and changing leaf, ten of the most common shade trees; the parts of a leaf, and the work of each part. Notice the colors as they change (ripen). Watch the falling of the leaves, meaning, value to the tree, to the soil.

Flowers.—Notice their preparation for winter; gradual disappearance.

Commence collection of fruits and seeds.

Animals.—Continue the observation of birds, noticing their preparation for winter. Watch the flies, mosquitoes, ants, crickets, grasshoppers, etc., and note how they prepare for the seasonal change.

Natural Phenomena.—Simple lessons on clouds, rain, dew, and frost.

NOVEMBER.

Fruits.—Keep a list of the fruits and seeds collected. Examine flowers changing to fruit, notice parts falling off, parts growing. Think what each seed contains, find how different seeds are protected.

Animals.—Notice which birds feed on seeds and bright colored fruits; think how they scatter plants. Pictures and stories of squirrels and chipmunks showing how they act as agents for distributing seeds.

Natural Phenomena.—Simple lessons on clouds, and frost.

DECEMBER.

Evergreens.—Recognition of the most common of the evergreens.

Compare the evergreens with deciduous trees to notice the difference between needles and leaves; buds of evergreens and buds of deciduous trees; cones and other fruits.

Natural Phenomena.—Simple lessons on light and heat, darkness and cold; associate with position of sun, seasonal changes; note the length of day and night on December 21st.

JANUARY.

Weather Record similar to the one kept in October.

Evergreens.—Continue work commenced in December.

Animals.—Watch the winter birds for the purpose of observing their habits of eating, food, movements, color, places of shelter. Stories of bird life in winter.

Natural Phenomena.—Simple lessons on clouds, rain, snow, and ice.

Wind,—direction, force, associate with changes in weather.

Myths and legends of the wind.

FEBRUARY AND MARCH.

Domestic Animals.—Horse and cow as typical illustrations of the grass-eating animals. Habits, movements, coverings, senses, eating, voices, care of young, intelligence. Pictures and stories of winter life of wild animals belonging to this group.

Other pet animals. Keep a record of the return of birds, and insects. Collect frogs' and toads' eggs and watch them develop.

Flowers.—Watch for the blossoming of the skunk-cabbage, pussy willow, birch, hazel, chickweed, dandelion, etc.

APRIL.

Illustrated weather record.

Trees.—Learn to recognize the trees and shrubs by their buds, blossoms and leaves; watch the growth and development of the early fruits, especially elm and red maple. Watch for insect visitors about the early blossoms. Transplant from outdoors and study the growth and development of seedlings, to observe the habits and peculiarities of growth of special trees.

Animals.—Continue observation of birds and insects.

Flowers.—Keep a record of them as they appear and are recognized.

MAY AND JUNE.

Continue the work commenced in April, broadening it as life develops.

Wild Flowers.—Distinguish the common wild flowers and weeds by name and color. Notice the parts of flowers, and think of their use; insect visitors.

Growing Plants.—Watch the development of growing plants and notice their habits of growth, the opening of the flower, and formation of fruit.

Animals.—Select some form of animal life and watch its development, noticing habits and adaptation.

Natural Phenomena.—Simple lessons on light and heat, darkness and cold, for purpose of associating with seasonal change and change in life.

In June keep illustrated weather record.

THIRD YEAR.

SPECIAL PURPOSE.—Observations of habits of plants and animals with simple adaptations.

SEPTEMBER.

Flowers.—Keep a list of the common wild flowers and weeds, grouping according to color and locality.

Examine flowers for the purpose of observing relation of parts to each other, and their use. Watch the flowers and note their insect visitors, think how the insects can reach the nectar. Explain what insects do to assist the flowers in their work.

Animals.—Keep a record of the birds seen, recognizing by color and song. Stories of migration.

Watch how toads, frogs, caterpillars, butterflies, grasshoppers, crickets, etc., prepare for winter.

Natural Phenomena.—Simple lessons on the sun, for the purpose of observing its position in the heavens in the A. M., at noon, in the P. M., and associating with seasonal changes. Note comparative length of day and night September 22nd.

Moon—Harvest moon, Hunter's moon.

Stars—evening and morning stars.

Myths and legends.

OCTOBER.

Natural Phenomena.—Weather record. Keep a record to show the relation of temperature, winds, forms of water. Through the month make note of observations of the condition of streams, soil, plants and animals. At the close of the month compare these notes with the weather record for the purpose of observing their relation.

Simple lessons on dew, and frost.

Trees.—Study the marked differences in leaves for the purpose of identifying the trees.

Flowers.—Use the September record and note the gradual decrease in varieties found.

Animals.—Continue the September records to note date when birds and insects disappear and infer the reason why.

Commence fruit and seed collection.

NOVEMBER.

Fruits.—Examine collections for purpose of observing attractive colorings, protective coverings, modes of opening for purpose of scattering seeds.

Trees.—Observe which trees lose their foliage early, which retain it, which retain fruit after their leaves drop, etc.

DECEMBER.

Natural Phenomena.—Simple experiments in connection with the study of the wind. Forms of water,—clouds—kind, position, use; rain—source, clouds that bring it, what becomes of all the rain that falls, uses; snow and ice—uses, formation of snow crystals. Sun—position in the heavens December 21st.

JANUARY.

Weather Record.—Keep a record similar to the one kept in October.

Evergreens.—Compare different evergreens and note differences in needles, buds, and cones for the purpose of identifying the trees.

FEBRUARY AND MARCH.

Soil-forming Minerals, Soils.—Quartz, feldspar; gravel, sand, clay, and loam. Arrangement in layers. Uses.

Signs of Spring.—Keep a record of the birds as they return, watch how they get food. Return of insects, where found, what doing. Frogs' and toads' eggs developing into tadpoles. Blossoming of skunk-cabbage, pussy willow, alder, poplar, hazel, chickweed, etc.

Natural Phenomena.—In March observe the position of the sun. Wind—direction, force, use.

APRIL.

Weather Record.

Life History of Seedlings.—Oak, maple, elm, horsetrust, etc. Plant the seed, or transplant seedling, watch the growth and development, noting peculiarities of habits of growth, and needs of plant.

Trees and Shrubs.—Learn to recognize them by the bud, blossom, and leaf. Study the blossoms to note irregularities; formation of fruit.

Animals.—Select some form of animal life and watch its development, noting habits and adaptation to environment.

Keep a nature calendar through the spring months.

MAY AND JUNE.

Continue the work commenced in April, broadening it as life develops.

Wild Flowers.—Keep a list of the wild flowers and weeds as they are brought in and recognized, recording date, color, habitat. Examine flowers for the purpose of observing relation of parts to each other, and their use. Study peculiarities and see how fitted to attract and receive insect visitors. Explain how they assist the flower.

Natural Phenomena.—Simple lessons on clouds—kind, position, use; wind—direction, strength, use; rain—source, amount, uses.

JUNE.

Weather Record.

FOURTH YEAR.

SPECIAL PURPOSE.—Continued observations of habits, simple relations of plants and animals.

SEPTEMBER.

Flowers.—Study the flowering plants of some given section for the purpose of learning how, where, and what plants grow together (plant relations).

Select flowers having peculiar shape or markings, observe the form and relation of parts; notice how adapted to promote visits of insects.

Examine flowers and watch the formation of fruit, parts that fall off, remain and grow.

OCTOBER.

Trees.—Collections of green and colored leaves of different trees and shrubs, to note transition. Notice differences in arrangement and think of the adaptation to secure light. Simple experiments illustrating work of leaves for the tree.

Search for insects found on leaves and branches for the purpose of determining whether beneficial or injurious. Birds feeding on insects.

Weather Study.

NOVEMBER.

Dispersion of Fruits and Seeds.—Use the class, and individual collections, group according to agency—(1) by wind, (2) by clinging to animals, (3) food for animals, (4) mechanical means, (5) floating on water.

Study typical illustrations, note differences, and think of value to plant.

DECEMBER.

Evaporation and Condensation, Forms of Water.—Clouds, fog, rain, snow, ice, dew, frost.

JANUARY.

Evergreens.—Life history of the needles of the pines, spruce, hemlock, arbor-vitae.

Life history of the cone.

Weather Study.

FEBRUARY AND MARCH.

Building Stones.—How and from what made. Quartz, feldspar, mica; granite, sandstone, slate.

Formation of crystals.

Commence record of spring life—birds, insects, flowers.

APRIL.

Trees and Shrubs.—Learn to identify the most common shade trees and shrubs by their buds, blossoms, and leaves.

Watch the development of buds into leaves, twigs, and blossoms; the formation of early fruits.

Select some special tree for study and note,—Name, date of opening of buds, kind and arrangement of blossoms, whether tree increases in height or width with new growth, leaf-peculiarities,

how pollinated. Plant seed or transplant seedling of oak, maple, horsechestnut, elm, etc., and note changes marking habits of growth.

Animals.—Select some form of animal life and watch its development, noting habits and adaptation to environment.

Weather Study.

MAY AND JUNE.

Continue the work commenced in April, broadening it as life develops.

Plants.—Transplant from outdoors a few common wild flowers and weeds, watch their growth and development, noting their needs, habits of growth, formation of fruit. Study flowers having peculiar habits of growth and think of their adaptation to environment; how fitted to secure aid of insect visitors.

JUNE.

Weather Study.

GRAMMAR GRADES.

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SPECIAL PURPOSE.—Some special forms of life, selected to emphasize certain nature truths,—life stories of certain plants and animals; habits of life with adaptations of structure to that life; the relation of plants and animals to human interests; reading of nature literature to feel the impress of naturalist, poet, and artists as interpreters of nature.

Fifth Year.

LIFE HISTORIES OF INSECTS.

Life stories of some common insects, e. g., (1) large and small crickets, male and female, in a jar of turf, fed on apple. Learn to understand parts by seeing their use, note adaptation, growth of young to adult stage. (2) Squash bugs raised in cages—special adaptation to life, injuries to vegetation. (3) Caterpillars feeding on leaves, stages in development. Collecting cocoons. (4) Habits of bees, wasps, and ants; value of their work to human interests; illustrations of instinct. (5) Spiders—habits of life, spinning web, getting food, growth of young. Reading on insect habits, summary of valuable and injurious insects. How insects prepare for winter.

WINTER TERM.

NATURE PROCESSES.—(1) *Evaporation.* Experimental exercises, to show rapid evaporation; slow evaporation; conditions favoring evaporation; evaporation purifies; water evaporates from green

leaves; water is breathed out by animals. Apply to outdoor phenomena.

(2) *Condensation*.—Experimental exercises, to show moisture condensing from air; vapor condensing from boiling water; noting outdoor temperature, etc., at which dew, fog, frost, ice, snow form.

Apply in keeping a simple weather record, showing relation of temperature, wind and forms of water.

BUILDING STONES.—Experimental study of granite, sandstone, slate and marble. Examine material of which each is made; how united; determine hardness, lustre, colors of constituent parts; uses in town, and reasons for same. Collect specimens from locality, and those imported.

SPRING TERM.

(*Life Histories of Animals.*)

LIFE STORY OF THE COMMON TOAD.—Note the date of first trilling of toads; collect strings of toads' eggs in a dish fitted as an aquarium, with living plants. Keep careful record of all changes; write biography.

LIFE STORY OF FAMILIAR BIRDS.—As based on "First Book of Birds," Olive Thorne Miller.

LIFE STORY OF SOME INSECT.—Life of some caterpillar, on twigs properly arranged in schoolroom. Study the life story of other available insects. Recognition of a variety of insects. Notice injurious insects on plants and trees; birds which feed on them; how the trees may be preserved.

Sixth Year.

FALL TERM.

(*Our Common Trees.*)

RECOGNITION.—Plotting common shade trees in a given lot or along certain streets. Characteristics that make these trees desirable for shade purposes.

AUTUMN CHANGES.—Prepare a schedule, to show order in which trees change color, order in shedding leaves, time required for these changes, and relation of the changes to temperature changes.

VALUE OF TREES.—(1) How a tree grows. Uses of various parts to the tree.

(2) Examine prepared "wood sections," to understand the "grain" of wood. Study different woods used in the school building for various purposes.

(3) Forests: Note kind of trees in neighboring woods,—on sandy soil, in swamps, soil in which mixed forests grow. The great forests of North America. Need of forest preservation.

WINTER TERM.

NATURAL PHENOMENA.—Preparation of weather record, to observe storm conditions.

COMMON METALS.—Experimental study of iron, copper, lead, tin, zinc, mercury, for recognition, physical qualities, action of heat and moisture, magnetism and uses. Collection of metallic substances.

SPRING TERM.

(*Our Common Trees.*)

LIFE HISTORY OF TREES.—(1) Record of first signs of spring growth.

Date.	Tree or Shrub.	Observation.
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(2) How trees grow from buds.

Flowers First.	Leaves First.	Flowers and Leaves together.
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(3) How trees grow from seeds. Individuals plant seeds of trees in flower pots, and raise the trees. Write simple biography of tree. Find seedlings outdoors and transplant.

(4) Select some tree or shrub for the term's observation; keep a careful diary of changes, week by week. This becomes basis for talks about the habits of *common* trees.

Seventh Year.

FALL TERM.

(*How Plants Grow, or the Plant World Around Us.*)

FLOWERLESS AND FLOWERING PLANTS.—(1) Collect, press and study common ferns, as examples of flowerless plants. Teach to use botanical terms.

(2) Examine some flowering plant for review of parts of flower in their work of producing seeds. Study flowers for plan of insect pollination.

(3) Seed dispersal: collect and arrange in boxes, make lists under appropriate headings:—

By wind.	By water.	By animals.	By man.	By mechanical devices.
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WINTER TERM.
Almanac.

Date		Sun		Moon's phase	Moon set	Planets	
	rises	sets				even'g	morn.

COAL SERIES.—Experimental study of different members of this series, recording facts as observed, teach to arrange in tabular form.

	Structure	Lustre	Hardness	Burning	Flame
Peat					
Soft coal (bituminous)					
Hard coal (anthracite)					
Graphite					

Show that this is a series.
Geographical distribution.

SPRING TERM.
(*Review of Plant Life.*)

FLORA OF THE LOCALITY.—Collect single specimens of flowers as they appear. Record as a plant calendar.

Date.	Name (Herb, Shrub, Tree).	Colors.	Locality.
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HOW PLANTS GROW.—(1) Growth from cuttings.
(2) Study of seedlings.
(3) Growth of Ferns.

FLOWERS AND INSECTS.—Definite examination of parts of selected flowers, to find plan of arrangement; explain pollination by insects.

Eighth Year.

FALL TERM.

ANIMAL WORLD.—A general survey of the animal world, based on the observation of local typical land and water animals.

(1) Arrange in groups the known *vertebrates* of the region, selecting a few distinguishing marks for each class:—

Mammals.	Birds.	Reptiles.	Amphibians.	Fishes.
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(2) Arrange the common *mammals* in groups:—

Flesh eating (carnivorous).	Herb-eating (herbivorous).	Gnawing (rodents).	Others.
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Select a well known type of each order for study. (1) Adaptation to habits of life (2) Illustrations of intelligence and instinct; reasons for domestication. (3) Hibernation of rodents. (4) Prominent foreign animals belonging to each group, with some special adaptation of each to its environment.

(3) Similar study of *bird* groups:—

(a) Water birds. Illustration: ducks, gull, loon.

Observations.

Adaptation.

- Shape of body, for floating in water.
- Colors of parts, adaptation to climate and home.
- Bill and neck, for getting food.
- Wings and tail, character of flight.
- Legs and toes, for swimming and walking.

(b) Land birds. (c) Aerial birds.

WINTER TERM.

COMMON LIME ROCKS.—Experimental study with records:—marble, calcite, limestone, chalk, gypsum.

MARINE ANIMALS.—Continue the résumé of common animals—especially those that secrete lime, e. g., sponges, corals, animals with shells.

SPRING TERM.

(*Review of Animal Life.*)

FAUNA OF THE LOCALITY.—Keep record of returning animal life.

Date.	Animals seen or heard.	Circumstances.
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Use as basis of reading or talks on hibernation or migration.

BIRD STUDY.—(1) Preparatory exercises.—A few lessons with

colored pictures, or stuffed birds, to familiarize pupils with names of parts of birds needed for identification and description.

(2) Bird record.—Kept by individual pupils in a bird book.

Name.	Date of arrival.	Distinguishing marks.
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(3) Bird groups.—As the birds are studied they may be grouped into families.

(4) Bird day.—Special observation of the first Friday in May.

Ninth Year.

SPECIAL PURPOSE.—A résumé of the nature environment in New Bedford, for the purpose of reviewing and fixing the work of the previous years from the practical side; also a preparation for scientific study by simple study of structure.

Teachers will select material according to locality and probable interest. This outline will indicate to the teachers of the other grades the point toward which their work aims.

FALL AND SPRING TERMS.

PLANTS, TREES OF NEW BEDFORD.—(1) Review common trees by families:—

(a) Shade and ornamental trees—elms, maples, ash, poplars, willows, birches, etc.

(b) Nut trees—oaks, walnuts, hickories, chestnut, beech.

(c) Cone-bearing trees—pines, spruces, cedars, larch, arbovitae.

(d) Fruit trees—cherry, wild cherry, peach, apple, etc. Develop the power to describe a definite tree, also interest the pupils in selecting beautiful poems on trees.

(2) Parts of a tree, learn to use correct terms, uses of the parts to the tree in its life.

(3) Useful woods, e. g., different woods used in school building and its furnishings, why selected.

(4) Value of forests and the need of their preservation.

DESK BOOKS.—“Trees of New England,” Dame and Brooks; “First Book in Forestry,” Roth.

COMMON FLOWERING PLANTS OF NEW BEDFORD.—(1) Distinguish some of the *notable plant families*:—

Composites—flowers in close cluster or head, ray and disk flowers, or strap and tubular flowers, great abundance of seeds.

Ill. Many ornamental flowers, e. g., aster, sunflower. Many troublesome weeds, e. g., daisy, dandelion.

Parsley Family.—umbrella like flower cluster.

Ill. Wild carrot, a troublesome weed.

Pulse Family—butterfly like flowers.

III. Pea, bean, useful plants.

Rose Family, Orchis Family, etc.

(2) Review parts of a plant and of a flower.

Use common terms in describing some definite plants and flowers.

Illustrate with sketches. How fruits are formed and seeds scattered. Select flower poems.

Desk Books.—Parson's "How to Know Wild Flowers;" Atkinson's "First Studies in Plant Life."

ANIMALS—COMMON ANIMALS OF NEW BEDFORD.—(1) Group the known *vertebrates* as follows: Mammals—mostly domestic animals, (why domesticated).

Birds—domestic and wild, (migration).

Reptiles—snakes, turtles, (hibernation).

Amphibians—toads, frogs, (hibernation and development).

Fishes—common food fishes, (life in the water).

Distinguish the groups—covering, limbs, warm or cold blooded, breathing, how care for the young.

(2) Common *bird families* and their food.

Flat billed swimmers—ducks and geese, (food in mud).

Long winged swimmers—gulls and terns, (fish, etc., in water).

Shore birds—snipe, sandpiper, (small animals along shore).

Birds of prey—hawks, owls, (small animals on earth).

Woodpecker—downy, flicker, (insects on trees).

Flycatchers—kingbird, phoebe, (insects in the air).

Crows and bluejay, (great variety of food).

Blackbird family—blackbirds, orioles, (insects, fruit).

Sparrow family—English sparrow, song sparrow, etc., (seed eaters, insects).

Swallow family—tree swallow, barn swallow, (insects in the air).

Emphasize value of birds in eating insects, and seeds of weeds.

Select bird poems.

DESK BOOKS.—Chapman's "Bird Life." Bird Lore Chart of Bird Families for each building.

(3) COMMON INSECTS.—to distinguish and use names correctly, to know their value or injury to human interests.

Grasshoppers and crickets—feed on vegetation, little damage.

Dragonflies—over ponds, feed on flies and mosquitoes.

Beetles—(1) grubs feed on vegetation, e. g., potato beetle, rose beetle, elm tree beetle, carpet beetle—injurious. (2) grubs feed on animal matter, e. g., scavenger beetles, ground beetles, lady beetles—useful.

Butterflies and moths—caterpillars feed on vegetation, e. g., canker worm, cabbage worm, tomato worm, clothes moth—injurious. Adults help pollinize flowers—useful. Silk worm moth—useful.

Flies and mosquitoes—two winged insects, scavengers, carry disease. Need of destroying breeding places of mosquitoes.

Bees, ants, and wasps—interesting habits, useful.

DESK BOOKS.—Constock's "Insect Life;" Hodge's "Nature Study and Life."

WINTER TERM.

LOWER FORMS OF ANIMAL LIFE ALONG NEW BEDFORD SHORE.

(1) Lobsters, crabs, and shrimp—marine animals protected by crust, feed on small animals, used for food. Where live, habits, simple points of structure.

(2) Shell fish—oyster, clam, scallops, etc., valuable as food. Where grow, habits, capture.

(3) Snails—shells common along the shore, feed on dead fish, bore into shell fish; periwinkles on stones and in mud between tides feed on vegetable matter.

(4) Starfish—on rocks and stones, feed on oysters and clams, how to destroy them.

(5) Barnacles on rocks and floating timber—feed on small animals.

(6) Sponges, yellow and reddish, growing on rocks and old shells, feed on minute matter in water.

DESK BOOK.—Arnold's "Sea Beach at Low Tide."

MINERALS.

ROCKS FOUND IN NEW BEDFORD.

(1) Granite, gneiss, schist, (contain quartz, feldspar, mica or hornblende).

(2) Gravel and sand hills, clay (hard pan), soils. Learn to distinguish by bringing in specimens. What each is made of, and simple story of its formation. Forces acting on them—erosion, transportation, weathering, decomposition into soil; formation of springs and wells.

BUILDING STONES USED IN NEW BEDFORD.—Granite, gneiss, sandstone, slate, limestone, marble. In which buildings or parts of buildings, why used, whence do they come. What mineral substances used for paving, sidewalks, road building, etc.

OTHER USEFUL MINERAL SUBSTANCES.—Soapstone—uses. Why? Whence?

Coal—whence? Simple story of coal formation. Other illustrations.

DESK BOOKS.—Shaler's "First Book in Geology;" Crosby's "Common Rocks and Minerals."

COURSE IN MANUAL TRAINING.

(Wood Working.)

The word "Sloyd" is of Swedish origin, and has no equivalent in English. It means "to design and execute," and applies to any hand work. The word is used in this country in connection with Grammar School Manual Training (in wood work). It is as applicable to any other hand work and should be understood to include sewing, clay modeling, basket-making, weaving, iron work, and, in fact, any work which may be conceived by the pupil and executed by his hands. Its fundamental principle is "learning by doing."

Sloyd aims to produce a harmonious development of the child, morally, mentally and physically; to instill a respect for honest labor; to exercise the powers of observation; and to train him in habits of order, honesty, accuracy, industry, perseverance, neatness and economy, giving him through head, heart, hand and eye, such general training as will better fit him to enter upon any special trade or calling.

Such training well impressed, in connection with his other school work, the better fits him for any position in life. He need not become a mechanic because of such training; but the virtues instilled through Sloyd teachings are the underlying principles of all trades and professions.

Sloyd seeks to develop these virtues in the child, through a systematic course of work in wood, by the use of proper wood working tools, adapted to the strength of the worker, and the making and use of working drawings.

The course of models, or projects made by the boys during the Sloyd training, is supposed to number 31, involving the use of 47 tools and 72 exercises. To complete the full set of models, the plan is that boys should devote two hours per week for three years to Manual work and drawing, which means 240 hours during the boy's school life in the 7th, 8th and 9th grades.

Have changed the following models for the reasons noted:—

No. 4. Flower stick changed from $15'' \times \frac{1}{2}'' \times \frac{1}{2}''$ to $18'' \times 1'' \times \frac{3}{8}''$. Former size too small for boys to plane well.

Pen holder changed to No. 3 from No. 9. Made with straight sides instead of curved. Curved whittling too difficult.

No. 8. Flower pot stool. Sizes doubled. Original size too small for boys to make well.

No. 11. Hatchet handle. Wood from which it was made too hard. Not of sufficient interest. Marble rake made in its place.

No. 19. Was made originally to introduce a certain exercise, is of no use when finished, and so does not appeal to pupils.

No. 21. In place of the hat rack, a towel rack is made. Too many repetitions in the hat rack.

DRAWING.	NEW EXERCISES.	NEW TOOLS.	MODELS.	KINDS OF WOOD.	DIMENSIONS, INCHES.	
Concise and correct thought expression.	An Exercise in Sloyd is a specific use of a tool involving certain mental and physical efforts.	Instruments by which the hand gives material expression to thought.	Child's motives for the Exercises.	Variety of native woods suited to character of the objects.		
Working drawings, full size, including free-hand curves and simple geometrical problems excepting Nos. 4, 6, 11, 13, when the children read another's drawing. And in model No. 6, working drawings to scale.	1. Straight Whittling.	1. Knife.	1. Wedge.	Pine.	2½" x ¾" x ¼"	
	2. Oblique Whittling.	2. Sandpaper.	2. Flower-pin.	"	12" x ½"	
	3. Cross Whittling.	3. Drill-bit.	3. Penholder.	"	"	7½" x ½"
	4. Point Whittling.	4. Bit-brace.	4. Flower-stick.	"	"	18" x 1" x ¾"
	5. Sand-papering: (without block.)	5. Splitting Saw.	5. Tool-rack.	"	"	16" x 1 ¾" x ¾"
	6. Boring with Drill-bit.	6. Jack Plane.	6. Coat-hanger.	"	"	15½" x 1 ¾" x ¾"
	7. Fitting a Peg.	7. Try-square.	7. Cutting-board.	"	"	18" x 7" x ¾"
	8. Curve Whittling.	8. Back Saw.	8. Flower-pot Stand.	"	"	15" x 5¼" x 1 7/16"
	9. Rip-sawing.	9. Marking Gauge.	10. Flower-top Stool	"	"	11" x 11" x ¾"
	10. Narrow Surface Planing.	10. Block Plane.				
	11. Squaring.	11. Bench-hook.				
	12. Cross-cut Sawing.	12. Auger-bit.				
	13. Gauging.	13. Turning Saw.				
	14. End Planing, (in bench-hook.)	14. Spokeshave.				
	15. Boring with Auger-bit, (vertical.)	15. Brad-awl.				
	16. Sand-papering, (with block.)	16. Cutting-off Saw.				
	17. Curve Sawing.	17. Winding Sticks.				
	18. Smoothing with Spokeshave.	18. Firmer Chisel.				
	19. Boring with Brad-awl.	19. Flat File.				
	20. Broad Surface Planing.	20. Divider.				
	21. Vertical Chiseling.	21. Hammer.				
	22. Horizontal Boring.	22. Nailset.				
	23. Filing.					
	24. End Planing, (without bench-hook.)					
	25. Nailing.					
	26. Sinking Nails.					
	27. Making Halved-together Joints.					

DRAWING.	NEW EXERCISES.	NEW TOOLS.	MODELS.	KINDS OF WOOD.	DIMENSIONS, INCHES.
Concise and correct thought expression.	An Exercise in Sloyd is a specific use of a tool involving certain mental and physical efforts.	Instruments by which the hand gives material expression to thought.	Child's motives for the Exercises.	Variety of native woods suited to character of the objects.	
	28. Countersinking.	23. Countersink.	10. Bench-hook.	Pine and Cherry.	14" x 5½" x 1½"
	29. Gluing.	24. Screw-driver.			
	30. Sewing.				
	31. Modeling with Spokeslave.	25. Smoothing Plane	21. Hatchet-handle	Hickory.	14" x 13" x 3"
	32. Scraping.	26. Half-round File.			
	33. Beveling with Spokeslave.	27. Cabinet Scraper.	12. Corner bracket	Pine.	10" x 10" x 1½"
	34. Oblique Planing.		13 Hammer-handle	Hickory.	12" x 14" x 3"
	35. Spacing with Compass.	28. Bevel.	14. Key-board.	Pine.	15" x 2" x ½"
	36. Veining.	29. Veining Tool.			
	37. Carving.	30. Skew Chisel.			
	38. Wedge, Planing.				
	39. Filing Edge.	31. Round File.			
	40. Notching.	32. Carver's Punch.	15. Paper-knife.	Maple.	13" x 14" x 4"
	41. Punching.				
	42. Beveling Edge with Jack Plane.	33. Centre-bit.	16. Ruler.	"	16" x 13" x ½" x 16"
	43. Boring with Centre-bit.				
	44. Planing a Cylinder.		17. Towel-roller.	Pine.	18¾" x 14" x 2¾"
	45. Fitting Axle.				
	46. Open Mortise and Tenon Joint.	34. Mortise Gauge.	18. Frame*.	"	10" x 8" x 3"
	47. Making and Fitting Dowels.	35. Mallet.			

* Size of frames may be chosen by the pupil and submitted to the teacher.

Children 14-15 Years.

THIRD YEAR.

Time, 2 hours a fortnight.

DRAWING.	NEW EXERCISES.	NEW TOOLS.	MODELS	KINDS OF WOOD.	DIMENSIONS, INCHES.
Concise and correct thought expression.	An Exercise in Sloyd is a specific use of a tool involving certain mental and physical efforts.	Instruments by which the hand gives material expression to thought.	Child's motives for the Exercises.	Variety of native woods suited to character of the objects.	
48.	Fitting and Nailing Square Joints.		19. Box.	White-wood	11" x 5" x 2 3/8"
49.	Grooving with Gouge.	36. Firmer Gouge.	20. Pen-tray.	Gum-wood.	10 1/2" x 2 1/4" x 3 1/2"
50.	Chamfering.		21. Hat-rack.	Pine.	18" x 2 1/4" x 3 1/4"
51.	Straight Edge Beveling.		22. Picture-frame.	Gum-wood.	10" x 8 3/4" x 1/2"
52.	Half Lapping.		23. Cake-spoon.	Cherry.	13" x 2" x 3/8"
53.	Grooving with Chisel.	37. Compass Saw.	24. Picture-frame.	"	8 1/2" x 6 1/4" x 7/16"
54.	Compass Sawing.	38. Rabbet Plane.	25. Foot-stool.	Pine.	13" x 7" x 6"
55.	Grooving with Rabbet Plane.				
56.	Mirring.				
57.	Half-oblique Dovetail.				

DOMESTIC SCIENCE.

Domestic science was first included in public school work in this country, in Boston. Friends of the movement gave kitchen fittings, and the first years of tuition to the city, wishing to prove the value of the work before asking the city government to go to expense. Many things were hoped for it and the results have justified its introduction into the school systems of this country as well as in European schools.

Educational leaders, almost without exception, acknowledge the value of domestic science in the schools and where it is once introduced it is not often discontinued. To most of the mothers and children there is no study which seems to yield such immediate and attractive results.

The teachers of domestic science do not claim or hope to turn every pupil into a first class cook; perfection comes only with careful repetition, and that must come outside of the school kitchen. They do find rich results in other directions and the value of the study is shown in many ways. The purpose is to teach principles and methods with enough practical work to illustrate them, leaving the child to repeat the work at home until she is successful. It is too much to expect a child always to do perfectly a thing she has tried only once before under supervision, but if she understands the principle involved she is in a position to correct her mistakes and by practice becomes able to work without failure.

The study and practice of cooking in the public schools give the pupils a direct connection between theory and practical work, an immediate example of cause and effect, and goes far toward convincing a child that all labor may have dignity.

From the educational point of view domestic science has made a place for itself. The head and hands are here trained to work together; other studies, arithmetic, botany, English, physics, chemistry, physiology are correlated with the theory and practice of cookery. The home and school are brought nearer together: the child sees that the knowledge gained at school can be applied to the home life and she comes to understand that the test of education is not what we know but how much we can do with what we know.

From the utilitarian standpoint cookery has a place in public school work because it develops accuracy, neatness, economy, and

the child's power of observation, increases her dexterity and makes her self-reliant, teaches the importance of health and the relation of food to the body and is a strong point of interest between the home and school life.

The testimony of many of the children, and better still of the mothers, proves that in the home the work is a distinct benefit. Children are more willing to assist, anxious to take responsibility and more helpful in their way of working; they carry home new ideas, the routine bill of fare is varied in many homes, and when a child finds her cooking praised and enjoyed, perhaps compared favorably with her mother's work, her delight knows no bounds and directly school work has new value in her eyes.

Children whose minds work slowly in other studies often show a special aptitude for cooking. If such a child succeeds in making a better loaf of bread than the more brilliant student in mathematics, she gains a new respect for her own ability, which helps her to do better work in other studies.

The child whose mother can go away for a visit leaving her to keep house, tells with pride of her success in cooking and keeping the house neat, and invariably closes with the words, "I learned how at cooking school."

The aim of the teacher in domestic science is threefold—to educate the child along general and especial lines; to elevate and dignify manual labor and raise the standard of living; to teach the fundamental principles of cookery and cleaning so that with a proper amount of home practice children will be able to prepare and serve simple wholesome meals economically and neatly.

Outline of the Course in Domestic Science in the New Bedford Grammar Schools.

I.	
8th Grade.	9th Grade.
Preliminaries { <ul style="list-style-type: none"> names seats uniforms kitchen rules 	Review { <ul style="list-style-type: none"> "Housekeepers' Rules" "Measurements"
General definitions { <ul style="list-style-type: none"> cooking food reasons for cooking combustion 	Review starch Practice { <ul style="list-style-type: none"> chocolate stuffed tomatoes
Laws of heat.	
Practice { <ul style="list-style-type: none"> fire building pasting recipes 	

Measurements
Housekeepers' rules
Food Principles

1. Proteids
2. Carbohydrates
3. Mineral matter
4. Fats
5. Water

Practice { make cocoa
 { scrub boards
 { wash dishes
 { care for fire

II.

Preserving { definition
 { necessity
 { methods

General rules { utensils
 { care
 { jars
 { rubbers

Practice { can pears or peaches
 { apple jelly

Water { definition
 { structure
 { uses
 { temperature

Cellulose { structure
 { use and treatment
 { lack of food value

Starch { definition
 { structure
 { uses
 { temperature
 { food value
 { tests

Starch in vegetables illustrated by
examination of potatoes

Practice { boiled potatoes
 { mashed potato
 { potato soup

III.

Cauliflower { What is it?
 { treatment

Macaroni { What is it? Manf.
 { food principles
 { starch
 { gluten
 { temperature 212° F.
 { requires { moisture
 { fat or pro-
 { teid flavor

Cheese { food value
 { digestibility
 { food principle—casein
 { temperature

Practice { cauliflower
 { white sauce
 { macaroni and cheese

Carbohydrates
Starch as a grain
Methods of thickening liquids

Demonstration—cornstarch
 mould

Practice—white sauce

IV.

Starch—tapioca { source
 { manufacture
 { use

Legumens { value
 { temperature

Vegetables { green
 { dried
 { food value

Practice { sweet potatoes
 { tapioca pudding
 { dried lima beans

Review food principles	V.	Batters { thick thin
Vegetable { food value preparation		Doughs { soft stiff
Cellulose		Practice—cookies
Practice { mills sauce (review) boiled cabbage turnips carrots		
<hr/>		
	VI.	
Cereals		Frying—general rules
Gluten { occurrence food value properties		Fried food { advantages disadvantages
Fruit acids—food value		Fats and oils
Experiment—wash flour { gluten starch		Practice—doughnuts
Practice { breakfast food stewed fruit		
<hr/>		
	VII.	
Starch in wheat		Breakfast—
Baking powder and substitutes		Table setting
Doughs and batters		Duties of a waitress
Ex. with soda { cream of tartar molasses sour milk		Prepare and serve cerealine with fruit sauce
Demonstration—ginger bread		Scalloped salmon
Practice—Baking powder biscuit		Baked potatoes
		Graham muffins
		Coffee
<hr/>		
	VIII and IX.	
Bread		Review fermentation
Fermentation		Practice { Vienna bread Parker House rolls
Yeast { definition properties growth uses		
Practice { bread and rolls whole wheat and fine wheat		
<hr/>		

Proteids { definition albumen { properties { temperature { etc.	X. Eggs { use of air with eggs { to make food light
Experiments { albumen with { cold, hot and { boiling water, { and dry heat	Practice { pop overs { prune whip { cream cakes { filling for cream cakes { soft custard (review)

XI. Proteids { source { casein { food value Milk—type of perfect food Demonstration—omelette Practice { soft custard { fruit whip	Proteids—milk and eggs Practice { bread pudding { coconut custard { sauce for pudding
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XII. Proteids casein Cheese { food value { temperature Practice { cheese custard { cheese pudding { cheese crackers	Dinner lesson to teachers Prepare and serve without aid— Soup, meat or fish, Biscuits, potatoes, Pudding, coffee
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XIII. Albuminous foods Fish { food value { temperature { tests for fresh fish Practice—fish chowder	Fish and frying Review general rules for frying Preparation of oysters Practice { baked fish { scalloped fish { fish cakes
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XIV. Albuminous foods Classification Meat { structure { food value Marketing Cuts of beef illustrated by charts Practice—broil steak	Review marketing Practice { cook mutton { make ressoles { fricassee { short cakes
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XV.

Review marketing	}	Commercial gelatine—	{ source uses value
Uses and prices of cuts			
Gelatinoids	{ source properties food value	Practice	{ lemon jelly coffee jelly orange jelly pineapple jelly snow pudding chocolate cream
Practice—beef stew			

XVI.

Cake—value as food	}	Cake	
General rules for cake making			
Practice	{ plain cake water sponge cake frosting	Practice	{ nut cake gold cake fruit cake boiled and chocolate frosting

XVII.

Invalid cookery	}	Pastry	{ food value rules
Care of invalids			
Liquid diet	}	Practice	{ pastry lemon pie cream pie rhubarb pie
Light diet			
Convalescent diet			
Practice—beverages			

XVIII.

Invalid cookery	}	Invalid cookery	
Arrangement of trays			
Practice	{ gruel beef tea Irish moss Blanc-mange	Practice	{ egg nests orange cream egg lemonade orangeade milk shake ice cream

XIX.

Ice cream	}	Ice cream	
Latent heat, etc., principles of freezing			
Salads	}	Salads	To pack a picnic box
Practice	{ vanilla cream lemon milk sherbet lobster salad salad dressing	Practice	{ strawberry ice cream pineapple sherbet tomato salad salmon salad dressing for salad
work			

Christmas Lesson.

Sugar { source
 food value
 cookery
 temperature

Practice { peanut candy
 " fudge "
 molasses candy
 sugared pop corn

Practice { cocoanut cream candy
 maple cream candy
 chocolate caramels
 fruit and nut paste

SEWING.

This study is begun in the Fourth Grade and continued in the Fifth, Sixth and Seventh Grades.

A course of samplers is used on which all the different kinds of stitches, the preparing and fitting various kinds of work are taught. The first principles are taught in easy lessons and continues in progressive steps to more difficult work. This course completed, the child is capable of cutting and making all kinds of useful garments, including practical dressmaking.

The object of teaching sewing in the public schools is not merely to enable the pupil to make different kinds of stitches, cut and make garments to wear, but to dignify manual labor by helping to set in its proper place this household art.

It accords with the child's power. It excites and sustains interest.

The articles made are necessary and serviceable.

It forms habits of order and exactness.

It develops habits of cleanliness, neatness and economy.

Cultivates patience and perseverance.

Promotes power of concentration.

Trains the perceptive and constructive faculties.

Develops sense of form, size and color.

True education is one which not only develops the memory and intellect, but which educates as well the hand, the eye, and the faculty of observation.

First Year.

Grade IV.

CLASS DRILLS.

- I. Proper position while sewing.
- II. Finger exercises to render the fingers more flexible.
- III. Correct use of the needle in connection with the thimble.
- IV. Holding the needle and moving as in taking a stitch.
- V. Threading the needle and making a knot.
- VI. Holding the work.

POSITION WHILE SEWING.

- a. Feet in rest position.
- b. Shoulders erect, back against the chair.
- c. Never rest the arms upon the desk while sewing.

FINGER DRILLS.

NOTE.—Never raise the hands above the chest for the drills and repeat each drill several times.

- a. Name hands and fingers.
- b. Drill with fingers in five positions.
- c. Place the thimble on the proper finger for use.
- d. Push the needle through between the thumb and forefinger with the thimble.
- e. Move the thimble finger forward and back against the eye of the needle.
- f. Push the needle out and back as in taking a stitch.

NOTE.—The eye of the needle should always rest against the *back* of the thimble, an eighth of an inch from the top. Close attention should be given that the thimble is *always* used. These drills should be thoroughly taught and often reviewed during the first term.

PRINTED SAMPLERS.

The first principles of sewing are taught in easy lessons on two *printed* samplers of unbleached cloth, in order that the mind may be concentrated on the correct use of the needle and thimble, the slope, shape and direction of the stitches, and their use.

How to fasten the thread to the cloth to commence sewing, to join a new needleful of thread and to fasten the thread when finished.

PRINTED SAMPLER NO. 1.

The stitches taught on this sampler are, three kinds of basting and their use,—basting for dress seams, hems and tucks, close-stitching, back-stitching and overcasting. Also, the rules for fastening thread to commence different stitches, joining new threads and finishing work. No knots are used for stitching, back-stitching, hemming or over-sewing or where they cannot be carefully hidden.

Knots are used for basting, gathering, and for overcasting when they can be completely hidden.

PRINTED SAMPLER NO. 2.

New and more difficult stitches are here taught. They are, running or gathering, oversewing, hemming stitch, how to fold, baste, and sew a hem. Overcasting is repeated.

NOTE.—Care should be used that the work is held properly.

Never allow work, pins, needles or thread put to the mouth.

Do not allow sewing work to rest on the desk or pinned to the knee.

Never hurry, especially in the preparation of work. However little is done let that little be done thoroughly.

Never accept any but the best work the child is capable of.

SUPPLEMENTARY OR APPLICATION WORK.

A sewing apron of calico is made on which the stitches already learned are applied.

Sampler No. 1.

- I. Basting on sampler. Apply to the seam at the bottom of apron.
- II. Stitching on sampler. Apply to the seam at the bottom of apron.
- III. Overcasting on sampler. Apply to the seam at the bottom of apron.

Sampler No. 2.

- I. Overcast on sampler.
- II. Running or gathering.
- III. Oversewing—baste sides of apron pocket and oversew them.
- IV. Hemming stitch and finish hem on sampler. Hem top of the apron pocket with narrow hem. Make wide hem at the top of the apron and a line of running stitches for a half inch heading above the tape. Finish the apron by running in tape and hemming the ends of it; then catch the centre of the pocket at the top with a few stitches.

Towels, pillow slips, bolster cases, etc., may be made after the apron is finished.

Teach the difference in the numbers of thread and needles.

The difference between unbleached and bleached cloth.

Demonstrate and illustrate when possible.

Teach the number of inches in one yard and the fractional parts of one yard.

Short talks on the different kinds of cloth and how to determine the length and width of the cloth, etc.

Unbleached cotton is used because the threads are coarse and easily seen without straining the eyes.

It is softer than bleached and more easily handled in preparing seams. It is not so quickly soiled.

Colored threads are used because the child can more readily see her stitches, their shape, size, and method of joining.

MATERIALS REQUIRED FOR THE FIRST YEAR, FURNISHED THE PUPILS.

- I. Needles No. 5.
- II. Thread No. 40, red, yellow and blue.
- III. Two printed samplers.
- IV. Card and string.

MATERIALS REQUIRED FOR THE FIRST YEAR, FURNISHED BY THE PUPILS.

- I. Thimble.
- II. Needles No. 8 (*not* assorted).

- III. White thread Nos. 50-60.
- IV. Small thimble bag to hold needles, thread, thimble, etc.
- V. One yard of light calico for sewing apron.
- VI. Pins.
- VII. White tape, half an inch wide and $1\frac{1}{2}$ yards long.

Second Year.

Grade V.

Every child is expected to have a sewing apron which she has made, if it is not finished time is given to finish it.

A sampler of plain unbleached cloth is now used. It is made of strips, each one representing new and more difficult work. These strips are sewed together, teaching different kinds of seams. A finished sampler furnishes the child with a model for future reference. Garments are for immediate use. Samplers represent lessons for a lifetime.

This sampler is several steps in advance of the printed samplers. The guide now is keen observation, judgment and patience. The finer muscles of the hand are now brought into use as more skillful work begins.

UNBLEACHED SAMPLER.

First Strip.

- I. Review the previous year's work.
- II. Examine every sewing apron to see if it is properly finished.
- III. Give every pupil a card on which to write her name and a string to tie it on her work.
- IV. Demonstrate and illustrate a new lesson when possible.
- V. Always ask questions about the work, that you may know how well the child has learned and understands what she has done.
- VI. Teach by a class lesson the method of making a measure to use for turning hem, etc.
- VII. To every child who has finished her sewing apron give the first strip for the unbleached sampler.
- VIII. Let all who are ready commence the basting for dress seams one-half of an inch from the edge of the strip. Get the pupils to tell you all that they can remember about this kind of basting.
- IX. Next—basting for hems. Have the pupils describe this line of stitches.
- X. Then the basting for tucks. Ask the children to find some tucks, hems and dress seams, and tell you the use of each.
- XI. Close stitch in three colors under first line of basting.
- XII. Back stitch in three colors under second line of basting.

XIII. Combination stitch in three colors under third line of basting.

XIV. Teach how to make a hem-fell — hem with three colors of thread.

XV. Make two lines of the running or gathering stitch under the hem-fell.

XVI. Trim off the ravelings from the lower edge of the strip and overcast it. Then turn the edge over one-quarter of an inch and baste down.

Second Strip.

I. Ask for description of hem and why used.

II. Baste the first turning narrow and apply line of basting for hems.

III. Baste the second turning. Use the measure which has been made in a previous lesson. Teach how to measure, crease, pin, and baste a hem, three-quarters of an inch wide.

IV. See that each child holds the work correctly over the first finger of the left hand for hemming and points the needle in the right direction.

V. Notice if every one fastens the thread to the hem right to begin the hemming and understands how to join a new needleful and finish off the work according to the rules for the same.

VI. Practice printing each child's name on paper, when good, print it on the strip under the hem. Then the age and year in which the pupil began the sampler, making three lines of it.

VII. Outline the printed name, age and year with close stitching, allowing the child her choice of color of thread.

VIII. Baste the second strip to the first strip for oversewing.

IX. Oversew from right to left in three colors.

Questions: Where used, and why; how to fasten thread, etc.

X. Class lesson: Hemmed on patch, with paper to teach the method, in order that the pupil may handle more readily the patch on cloth.

XI. Apply the lesson on the strip of unbleached cloth with one edge selvedge, matching the threads.

XII. Class lesson: Buttonhole cutting — with ruled paper — teaching how and where to cut, the names of the sides and ends of the cut.

SUPPLEMENTARY WORK.

Aprons, pillow and bolster cases, white skirts, towels, handkerchiefs, and plain sewing of any kind.

MATERIALS REQUIRED, FURNISHED BY THE PUPILS.

Thimbles.

Thread Nos. 50-60.

Pins.
 Sewing apron.
 Needles No. 8.
 Material for application work.

Third Year.

Grade VI.

The unbleached sampler is continued.

Each year new cards and string are given to each pupil.

Review questions asked.

I. Class lesson, to teach overcasting the cut for the buttonhole, how to hold the work and point the needle.

II. Teach the working stitch on the folded edge of the cloth on which the overcasting is taught.

III. Apply working stitch to the overcast cut, and teach how to finish the buttonhole.

IV. When the strip with the hemmed-on patch is finished sew it to the second strip—teaching the French fell,—why and where used.

V. Baste first seam narrow — backstitch under basting.

VI. Make second seam narrow as practicable for neatness and strength, baste and close stitch with three colors.

VII. Give as a class lesson the stitched-in patch with striped paper to teach, not only how to prepare, but to match stripes.

VIII. Apply to a strip of figured cloth,—having one edge selvedge, in order to teach how to match figures accurately. See that corners are fitted, leaving no holes.

IX. The oversewed patch on figured cloth also.

X. Baste the colored strip on the other strip of patches for an oversewed seam of selvages. Leave the seam open about two inches for a gusset.

XI. Teach cutting a gusset by a class lesson.

XII. Cut, prepare, and sew in the gusset. Teach its use.

XIII. Teach how to measure, crease, baste and sew tucks.

XIV. Sew this strip of tucks on to the sampler. Teach how to prepare and sew a flat fell seam. Stitch and hem with three colors. Always have the fells turned with point of the needle.

XV. Continue buttonhole practice.

APPLICATION WORK.

All kinds of undergarments and plain dresses.

Fourth Year.

Grade VII.

- I. Review questions.
- II. Strip for gathered piece to be hemmed on sides.
- III. Mark the piece to be gathered and the band into halves and quarters with running stitches.
- IV. Gather and stroke gathers.
- V. Teach how to pin, baste and sew gathers to the band.
- VI. Make a buttonhole in the band.
- VII. Teach sewing a button on the band.
- VIII. Hem or hemstitch the last strip for the sampler on the ends and one side, make narrow hem for a ruffle.
- IX. Teach whipping the ruffle.
- X. Sew ruffle on to the band. See that the work is held right.
- XI. Featherstitch around the ruffle inside of the hem.
- XII. Overcast the sampler.
- XIII. Catch stitch around the sampler.
- XIV. Teach how to sew on tape on the top of the sampler, three different ways.

Extra lessons may be given on stocking darning, straight or cornered rent darning on white and woolen cloth, with thread or raveling, napery hem, stay for buttons when cloth needs to be strengthened, buttonholes in different kinds of material, loops, eyelets, and many other kinds of work.

APPLICATION WORK.

Cooking outfit — apron, cap, holder and towel,—undergarments of all kinds and plain dresses.



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